

### ABSTRACT OF THE DISCLOSURE

High precision continuous time  $g_mC$  BPF (Band Pass Filter) tuning. A novel approach is presented by which a continuous time signal serves as a BPF control voltage for tuning of a BPF within a communication device (e.g., transceiver or receiver). A PLL (Phase Locked Loop) tunes the center frequency of the BPF using this continuous time signal, and the PLL oscillates at the center frequency of the BPF. The BPF is implemented as a  $g_mC$  (transconductance-capacitance) filter, and the PLL is implemented using a number of  $g_m$  (transconductance) cells as well. The PLL's  $g_m$  cells and the BPF's  $g_m$  cells are substantially identical in form. All of these  $g_m$  cells are operated within their respective linear regions. This similarity of  $g_m$  cells within the PLL and the BPF provide for substantial immunity to environmental perturbations including temperature and humidity changes as well as fluctuations of power supply voltages.